

WRIGHT-PATTERSON AIR FORCE BASE, AREA E,  
BUILDING 55, CENTRIFUGE BUILDING  
DAYTON VIC.  
GREENE COUNTY  
OHIO

HAER No. OH-79-X

HAER

OHIO

29-DAYTON

IX-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record  
National Park Service  
Department of the Interior  
P.O. Box 37127  
Washington, D.C. 20013-7127

HISTORIC AMERICAN ENGINEERING RECORD  
WRIGHT-PATTERSON AIR FORCE BASE, AREA B,  
BUILDING 55, CENTRIFUGE BUILDING

HAER No. OH-79-X

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29-DAYT.V,  
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Location: Off 3rd Street at far northeastern corner of  
Area B; Wright-Patterson Air Force Base, Area  
B, Dayton Vicinity, Greene County, Ohio.

Date of  
Construction: 1942.

Present Owner: USAF.

Present Use: Aeronautical Systems Center Clothing  
Laboratory.

Significance: Building 55 was built during World War II as  
a location for research regarding the human  
tolerance for acceleration. A clothing  
research facility later located in this  
structure was instrumental in the development  
of flight gear and personal protective  
clothing, including the early NASA space  
suits.

Project  
History: This report is part of the overall Wright-  
Patterson Air Force Base, Area B  
documentation project conducted by HAER 1991-  
1993. See overview report, HAER No. OH-79,  
for a complete description of the project.

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HAER No. OH-79-X  
(Page 2)

DESCRIPTION: Originally a temporary World War II structure, this wood-framed building with bow string truss is now covered with metal siding. On the south end is a single door with canopy on the right, and six windows in two groups of three on the left. The west wall contains (from right to left) six windows, two single doors, three windows and a set of double doors. The north side has a single door flanked by two groups of three windows, and the rear of the building has a total of seventeen windows in five groups of three and a double window. All the windows are replacement in original casements, while all the doors are canopied. The main entrance is on the west side and appears to have been a double door at one time, as the frame extends to the right and is filled in with boards.

HISTORY: The Aero Medical Research Laboratory (later the Aero Medical Laboratory), established to research the effects of flight stress and to design equipment to better protect and assist pilots as aircraft technology advanced, built the Centrifuge Building in 1942 to test human endurance to the effects of acceleration. The second human centrifuge (the first was located in a building nicknamed the "Balloon Hangar"), operational from May 1943 until the summer of 1948, helped establish the unprotected and protected human tolerance to long term acceleration, and the human tolerance to acceleration onset rates. These experiments in the Second Human Centrifuge were essential for the development of the first G-suits, particularly the G-3, the Air Force's first standardized G-suit. The Centrifuge was also the site of the first studies of instrument-reading performance under acceleration.

The Aero Medical Laboratory dismantled the Centrifuge in 1948 and refurbished Building 55's interior to house its Clothing Branch. Since then, Building 55 has been the site for all new developments in Air Force uniform clothing, and personnel there also helped produce the early NASA space suits (including the monkey suits). Currently named the Aeronautical Systems Center Clothing Laboratory, the lab still assists in the development of flight suits and personal protective clothing.

For bibliography, see Wright-Patterson Air Force Base overview report (HAER No. OH-79).